REMARKS

Reconsideration of the application is respectfully requested.

1. Independent claim 12 of the present application has been amended to provide that the air intake manifold and the air exhaust manifold are within the cathode flow field and that the fuel intake manifold and fuel exhaust manifold are within the anode flow field. Such amendments are fully supported by the specification of the present application including in particular paragraphs [0032] and [0037] and supporting Figures 3A and 3B.

2. Examiner has rejected claims 1-5, 8 and 12-14 under 35 U.S.C. 102(b) as being anticipated by Donelson (US 6,942,052). In Donelson, the manifolds are separately sealed and therefore, the interconnect itself actually has grooves to define inlets to and from the intake and outlet manifolds for the flow of the reactants (see Donelson, Column 8, lines 9 to 21).

The specification of the present application identifies the necessity of having to machine complex interconnect elements having such grooves and channels as a prior art limitation. In particular, the specification identifies the problems associated with having to manufacture intricate interconnect elements (see paragraphs [0004] to [0006]).

The fuel cell of the present application seeks to overcome these problems by simplifying the fuel cell by using seals that encompass reciprocal intake and exhaust manifolds, whilst excluding the other reactant intake and exhaust manifolds. Thus, in the present application a simplified unitary interconnect may be utilized with the compressible seals which define the reactant flow fields and which direct the reactants through those fields from the intake manifold to the exhaust manifold. It is an element of independent claims 1 and 12 of the present invention that the air intake manifold and the air exhaust manifold are within the cathode flow field, and that the fuel intake manifold and fuel exhaust manifold are within the anode flow field. Such configuration means that the seals not only define the cathode and

anode flow fields, but they also direct the reactant flow from the respective intake manifold to the respective exhaust manifold. This is described in detail paragraphs [0032] and [0037] of the present invention and is clearly depicted in Figures 3A and 3B. Further, paragraph 9 of the present application reads as follows:

> The present invention relates to a novel solid oxide fuel cell stack configuration which comprises solid, unitary interconnects **and seal-defined flow fields for directing reactants to the fuel cell electrodes.** [emphasis added]

In contrast, as already discussed, Donelson does not teach flow fields containing exhaust and intake manifolds. Rather, in Donelson, the manifolds are independently sealed and reactant flow management is achieved using grooves in the interconnect to define inlets to and from the intake and outlet manifolds.

Thus, it is respectfully submitted that Donelson does not describe an element of independent claims 1 and 12. It is therefore submitted that independent claim 1 and dependent claims 2-5 and 8, and independent claim 12 and dependent claims 13-14, are not anticipated by Donelson.

3. Examiner has rejected claims 1-5 under U.S.C 35 102 (e) as being anticipated by Ghosh (US 6,855,451). Like Donelson, Ghosh teaches the use of independently sealed manifolds. Reactant flow is managed using manifold openings in the structure of the interconnect (see column 4, lines 47-67 and column 5 lines 1-3). Thus, Ghosh requires a middle barrier plate (42) disposed between two outer interconnect elements. The seal configuration of the present invention (as discussed in detail above) eliminates the need for such a complicated interconnect.

Ghosh does not teach or disclose the air intake manifold and the air exhaust manifold contained within a seal defined cathode flow field, or the fuel intake manifold and fuel exhaust manifold contained within a seal defined anode flow field.

Thus, it is respectfully submitted that Ghosh does not describe an element of independent claim 1. It is therefore submitted that independent claim 1, and dependent claims 2-5 thereto, are not anticipated by Ghosh.

4. Examiner has rejected:

(a) claim 6 under U.S.C. 35 103 (a) as being unpatentable over Donelson in light of Allen (US 6,777,126);

(b) claims 7 and 14 under U.S.C. 35 103 (a) as being unpatentable over Donelson in light of Iwase (US 6,245,453);

(c) claims 9 and 15 under U.S.C. 35 103 (a) as being unpatentable over Donelson in light of Bourgeois (US 2004/0043278); and

(d) claims 10 and 11 under U.S.C. 35 103 (a) as being unpatentable over Donelson in light of Ghosh.

In each of the above referenced obviousness rejections, Examiner has cited Donelson in light of an additional piece of prior art. As discussed above, it is respectfully submitted that Donelson does not disclose or teach the use of compressible seals defining a flow field that encompasses intake and exhaust manifolds, an element of independent claims 1 and 12. Furthermore, none of Ghosh, Allen, Iwase or Bourgeois disclose or teach the use of compressible seals in this manner. As already discussed, the use of seals to direct and contain reactant flow permits the use of a simplified unitary interconnector. Accordingly, it is submitted that independent claims 1 and 12, and each dependent claim thereto, is patentable and non –obvious notwithstanding the prior art cited by the Examiner.

CONCLUSION

In view of the foregoing remarks and amendments, it is respectfully submitted that this application is In condition for allowance and allowance thereof is respectfully requested.

Respectfully submitted,

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By: _____
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Enclosures: 1. Petition For a Three-Month Extension of Time
2. Credit Card Payment Form